

ICAIF'24

5th ACM International Conference on AI in Finance

ICAIF'22 Accepted Papers

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Best Paper Awards:

- **Reinforcement Learning for Intra-and-Inter-Bank Borrowing and Lending Mean Field Control Game.** Jimin Lin (University of California, Santa Barbara)*, Andrea Angiuli (Amazon), Nils Detering (University of California, Santa Barbara), Jean-Pierre Fouque (University of California, Santa Barbara), Mathieu Laurière (NYU Shanghai)
- **Dynamic Calibration of Order Flow Models with Generative Adversarial Networks.** Felix Prenzel (University of Oxford)*; Rama Cont (University of Oxford); Mihai Cucuringu (University of Oxford and The Alan Turing Institute); Jonathan Kochems (JP Morgan)
- **Learning Not to Spoof.** David Byrd (Bowdoin College)*

Full List of Accepted Papers:

Paper	Authors
A Deep Learning Approach for Dynamic Balance Sheet Stress Testing	Anastasios Petropoulos (Cyprus University of Technology); Vassilis Siakoulis (Cyprus University of Technology); Konstantinos Panousis (Cyprus University of Technology)*; Loukas Papadoulas (Ethical AI Novelties); Sotirios Chatzis (Cyprus University of Technology)
Intelligent Inventory Management for Cryptocurrency Brokers	Christopher Felder (University of Tübingen)*; Johannes Seemueller (Boerse Stuttgart)
Multivariate Realized Volatility Forecasting with Graph Neural Network	Qinkai Chen (Ecole Polytechnique)*; Christian-Yann Robert (ENSAE Paris)
Sequential asset ranking in nonstationary time series	Gabriel F Borrageiro (University College London)*, Nick Firoozye (University College London), Paolo Barucca (University College London)

Paper	Authors
RESHAPE: Explaining Accounting Anomalies in Financial Statement Audits by enhancing SHapley Additive exPlanations	Ricardo Muller (University of St.Gallen)*; Marco Schreyer (University of St. Gallen); Timur Sattarov (Deutsche Bundesbank); Damian Borth (University of St. Gallen)
Deep Learning for Systemic Risk Measures	Yichen Feng (University of California Santa Barbara)*; Ming Min (University of California, Santa Barbara); Jean-Pierre Fouque (University of California, Santa Barbara)
Optimal Stopping with Gaussian Processes	Kshama Dwarakanath (JP Morgan Chase)*; Danial Dervovic (J.P. Morgan Chase & Co.); Peyman Tavallali (JP Morgan Chase); Svitlana Vyetenko (J. P. Morgan Chase); Tucker Balch (JP Morgan)
Equitable Marketplace Mechanism Design	Kshama Dwarakanath (JP Morgan Chase)*; Svitlana Vyetenko (J. P. Morgan Chase); Tucker Balch (JP Morgan)
Federated and Privacy-Preserving Learning of Accounting Data in Financial Statement Audits	Marco Schreyer (University of St. Gallen)*; Timur Sattarov (Deutsche Bundesbank); Damian Borth (University of St. Gallen)
Machine Learning for Earnings Prediction: A Nonlinear Tensor Approach for Data Integration and Completion	Ajim Uddin (New Jersey Institute of Technology)*; Xinyuan Tao (New Jersey Institute of Technology); Chia-Ching Chou (Central Michigan University); Dantong Yu (New Jersey Institute of Technology)
Network Filtering of Spatial-temporal GNN for Multivariate Time-series Prediction	Yuanrong Wang (UCL)*; Tomaso Aste (University College London)
Offline Deep Reinforcement Learning for Dynamic Pricing of Consumer Credit	Raad Khraishi (University College London)*; Ramin Okhrati (University College London)
Can maker-taker fees prevent algorithmic cooperation in market making?	Bingyan Han (University of Michigan)*
Denoised Labels for Financial Time Series Data via Self-Supervised Learning	Yanqing Ma (King's College London)*; Carmine Ventre (King's College London); Maria Polukarov (King's College London)
Monotonic Neural Additive Models: Pursuing Regulated Machine Learning Models for Credit Scoring	Dangxing Chen (Duke Kunshan University)*; Weicheng Ye (Carnegie Mellon University)
Risk-Aware Linear Bandits with Application in Smart Order Routing	Jingwei Ji (University of Southern California)*; Renyuan Xu (University of Southern California); Ruihao Zhu (Cornell University)
Sequential Banking Products Recommendation and User Profiling in One Go	George Farajalla (Genify.ai); Davide Liu (Genify.ai)*; Alexandre Boulenger (Genify.ai)
Knowledge Graph Guided Simultaneous Forecasting and Network Learning for Multivariate Financial Time Series	Shibal Ibrahim (Massachusetts Institute of Technology)*; Wenyu Chen (Massachusetts Institute of Technology); Yada Zhu (IBM Research); Pin-Yu Chen (IBM Research); Yang Zhang (IBM T. J. Watson Research); Rahul Mazumder (Massachusetts Institute of Technology)
Synthetic Data Augmentation for Deep Reinforcement Learning in Financial Trading	Chunli Liu (King's College London)*; Carmine Ventre (King's College London); Maria Polukarov (King's College London)

Paper	Authors
Mapping of Financial Services datasets using Human-in-the-Loop	Shubhi Asthana (IBM Research – Almaden)*; Ruchi Mahindru (IBM Watson Research Center)
Incentivising Market Making in Financial Market	Ji Qi (KING'S COLLEGE LONDON)*; Carmine Ventre (King's College London)
Portfolio Selection: A Statistical Learning Approach	Yiming Peng (Northwestern University)*; Vadim Linetsky (Northwestern University)
Core Matrix Regression and Prediction with Regularization	Dan Zhou (New Jersey Institute of Technology)*; Ajim Uddin (New Jersey Institute of Technology); Zuofeng Shang (New Jersey Institute of Technology); Cheickna Sylla (New Jersey Institute of Technology); Dantong Yu (New Jersey Institute of Technology)
Graph and tensor-train recurrent neural networks for high-dimensional models of limit order books	Jacobo Roa Vicens (University College London)*; Yao Lei Xu (Imperial College London); Ricardo Silva (University College London); Danilo P. Mandic ((Imperial College of London, UK))
Computationally Efficient Feature Significance and Importance for Predictive Models	Enguerrand Horel (Stanford University)*; Kay Giesecke (Stanford University)
Asymmetric Autoencoders for Factor-Based Covariance Matrix Estimation	Kevin Huynh (University of Basel); Gregor Lenhard (University of Basel)*
Theoretically Motivated Data Augmentation and Regularization for Portfolio Construction	Liu Ziyin (University of Tokyo)*; Kentaro Minami (Preferred Networks, Inc.); Kentaro Imajo (Preferred Networks, Inc.)
An Interpretable Deep Classifier for Counterfactual Generation	Wei Zhang (Columbia University)*; Brian Barr (Capital One); John Paisley (Columbia University)
Adversarial Fraud Generation for Improved Detection	Anubha Pandey (Mastercard)*; Alekhya Bhatraju (Mastercard); Shiv Markam (Mastercard); Deepak Bhatt (Mastercard)
LaundroGraph: Self-Supervised Graph Representation Learning for Anti-Money Laundering	Mário Cardoso (Feedzai)*; Pedro Saleiro (Feedzai); Pedro Bizarro (Feedzai)
Dark-Pool Smart Order Routing: a Combinatorial Multi-armed Bandit Approach	Martino Bernasconi (Politecnico di Milano); Stefano Martino (Politecnico di Milano); Edoardo Vittori (Politecnico di Milano)*; Francesco Trovati (Politecnico di Milano); Marcello Restelli (Politecnico di Milano)
Deep Hedging: Continuous Reinforcement Learning for Hedging of General Portfolios across Multiple Risk Aversions	Phillip Murray (JP Morgan)*; Ben Wood (JP Morgan); Hans Buehler (Technical University of Munich); Magnus R Wiese (University of Kaiserslautern); Mikko S Pakkanen (Imperial College London)
Supervised similarity learning for corporate bonds using Random Forest proximities	Jerinsh Jeyapaulraj (BlackRock, Inc); Dhruv Desai (BlackRock, Inc.); Dhagash Mehta (BlackRock, Inc.)*; Peter Chu (BlackRock, Inc.); Stefano Pasquali (BlackRock, Inc.); Philip Sommer (BlackRock, Inc.)
Asset Price and Direction Prediction via Deep 2D Transformer and Convolutional Neural Networks	Emre Sefer (Ozyegin University)*; Tuna Tuncer (Ozyegin University); Uygat Kaya (Ozyegin University); Onur Alacam (Ozyegin University); Tugcan Hoser (Ozyegin University)
Model-Agnostic Pricing of Exotic Derivatives Using Signatures	Andrew Alden (King's College London)*; Carmine Ventre (King's College London); Blanka N Horvath (TUM and KCL); Gordon Lee (N/A)

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Reinforcement Learning for Intra-and-Inter-Bank Borrowing and Lending Mean Field Control Game	Jimin Lin (University of California, Santa Barbara)*; Andrea Angiuli (Amazon); Nils Detering (University of California, Santa Barbara); Jean-Pierre Fouque (University of California, Santa Barbara); Mathieu Laurière (NYU Shanghai)
Market Making with Scaled Beta Policies	Joseph Jerome (University of Liverpool); Gregory Palmer (L3S Research Center); Rahul Savani (Univ. of Liverpool)*
Learning Mutual Fund Categorization using Natural Language Processing	Dimitrios Vamvourellis (BlackRock, Inc.); Mate Toth (BlackRock, Inc.); Dhruv Desai (BlackRock, Inc.); Dhagash Mehta (BlackRock, Inc.)*; Stefano Pasquali (BlackRock, Inc.)
Temporal Bipartite Graph Neural Networks for Bond Prediction	Dan Zhou (New Jersey Institute of Technology); Ajim Uddin (New Jersey Institute of Technology); Xinyuan Tao (New Jersey Institute of Technology); Zuofeng Shang (New Jersey Institute of Technology); Dantong Yu (New Jersey Institute of Technology)*
Learning to simulate realistic limit order book markets from data as a World Agent	Andrea Coletta (JP Morgan)*; Aymeric Moulin (J.P. Morgan); Svitlana Vyetenrenko (J. P. Morgan Chase); Tucker Balch (JP Morgan)
Collusion Resistant Federated Learning with Oblivious Distributed Differential Privacy	David Byrd (Bowdoin College)*; Vaikkunth Mugunthan (DynamoFL); antigoni polychroniadou (JPMorgan AI Research); Tucker Balch (JP Morgan)
Efficient Calibration of Multi-Agent Simulation Models from Output Series with Bayesian Optimization	Yuanlu Bai (Columbia University)*; Henry Lam (Columbia University); Tucker Balch (JP Morgan); Svitlana Vyetenrenko (J. P. Morgan Chase)
Contact-Industry Interest Model: A Graph-Based Collaborative Filtering Model with Applications in Finance	Yue Leng (JPMorgan Chase & Co)*; Evangelia Skiani (JPMorgan Chase & Co); William Peak (JPMorgan Chase & Co); Ewan Mackie (JPMorgan Chase & Co); Fuyuan Li (JPMorgan Chase & Co); Thwisha Charvi (JPMorgan Chase & Co); Jennifer Law (JPMorgan Chase & Co); Kieran Daly (JPMorgan Chase & Co)
Understanding counterfactual generation using maximum mean discrepancy	Wei Zhang (Columbia University)*; Brian Barr (Capital One); John Paisley (Columbia University)
Achieving Mean–Variance Efficiency by Continuous-Time Reinforcement Learning	Yilie Huang (Columbia University); Yanwei Jia (Columbia university)*; Xun Yu Zhou (Columbia University)
Cost-Efficient Reinforcement Learning for Optimal Trade Execution on Dynamic Market Environment	Di Chen (Cornell University); Yada Zhu (IBM Research)*; Miao Liu (IBM Research); Jianbo Li (Three Bridges Capital)
Objective Driven Portfolio Construction Using Reinforcement Learning	Ruiwen Wang (Vanguard)*; Jithin Pradeep (The Vanguard Group); Zikun Chen (The Vanguard Group)
Learning Not to Spoof	David Byrd (Bowdoin College)*
Strategic Asset Allocation with Illiquid Alternatives	Eric S Luxenberg (Stanford)*; stephen boyd (stanford university)
Online Learning for Mixture of Multivariate Hawkes Processes	Mohsen Ghassemi (JP Morgan Chase)*; Niccolo Dalmaso (JPMorgan AI Research); Simran Lamba (JP Morgan); Vamsi K Potluru (JP Morgan AI Research); Tucker Balch (JP Morgan); Sameena Shah (J.P. Morgan AI Research); Manuela Veloso (J.P. Morgan AI Research)
StyleTime: Style Transfer for Synthetic Time Series Generation	Yousef H El-Laham (JP Morgan AI Research)*; Svitlana Vyetenrenko (J. P. Morgan Chase)

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Differential Liquidity Provision in Uniswap v3 and Implications for Contract Design	Zhou Fan (Harvard University); Francisco J. Marmolejo-Coss (Harvard University)*; Ben Altschuler (Harvard University); He Sun (Harvard University); XINTONG WANG (Harvard University); David Parkes (Harvard University)
Addressing Extreme Market Responses Using Secure Aggregation	Sahar Mazloom (J.P. Morgan AI Research)*; Antigoni Polychroniadou (JPMorgan AI Research); Tucker Balch (JP Morgan)
Dynamic Calibration of Order Flow Models with Generative Adversarial Networks	Felix Prenzel (University of Oxford)*; Rama Cont (University of Oxford); Mihai Cucuringu (University of Oxford and The Alan Turing Institute); Jonathan Kochems (JP Morgan)
Addressing Non-Stationarity in FX Trading with Online Model Selection of Offline RL Experts	Antonio Riva (Politecnico di Milano); Lorenzo Bisi (Politecnico di Milano)*; Pierre Liotet (Politecnico di Milano); Luca Sabbioni (Politecnico di Milano); Edoardo Vittori (Politecnico di Milano); Marco Pinciroli (Banca Intesa Sanpaolo); Michele Trapletti (Banca Intesa Sanpaolo); Marcello Restelli (Politecnico di Milano)
Guided Self-Training based Semi-Supervised Learning for Fraud Detection	Awanish Kumar (Indian Institute of Technology Bombay); Soumyadeep Ghosh (Mastercard)*; Janu Verma (Mastercard AI Garage)
Decentralization Analysis of Pooling Behavior in Cardano Proof of Stake	Christina Ovezik (University of Edinburgh)*; Aggelos Kiayias (University of Edinburgh)
CaPE: Category Preserving Embeddings for Similarity-Search in Financial Graphs	Gaurav Oberoi (Mastercard); Pranav Poduval (Mastercard)*; Karamjit Singh (Mastercard); Sangam Verma (Mastercard); Pranay Gupta (MasterCard)
Market Making under Order Stacking Framework: A Deep Reinforcement Learning Approach	Guhyuk Chung (KAIST); Munki Chung (Korea Advanced Institute of Science and Technology); Yongjae Lee (UNIST); Woo Chang Kim (KAIST)*
Eigenvector-based Graph Neural Network Embeddings and Trust Rating Prediction in Bitcoin Networks	Pin Ni (University College London)*; QiAo Yuan (University of Liverpool); Raad Khraishi (University College London); Ramin Okhrati (University College London); Aldo Lipani (University College London); Francesca Medda (University College London)

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